

Claims

- [c1] A collector assembly for an x-ray tube having an anode and a cathode comprising:
an anode side;
a cathode side opposing said anode side, said anode side and said cathode side defining an internal bore there between;
a window side common to both said anode side and said cathode side, said window side defining a window area thereon, a window aperture is defined extending from said window area to said internal bore, and a slot is defined within the collector assembly intersecting said window aperture.
- [c2] The collector assembly of claim 1 further comprising a window coupled to said window area.
- [c3] The collector assembly of claim 2, wherein said slot extends circumferentially along at least one of said window or said window area.
- [c4] The collector assembly of claim 1, wherein said slot extends trans-axial to said window aperture and beyond.

- [c5] The collector assembly of claim 1, wherein the collector is cubical in shape and comprises three other sides common to both said anode side and said cathode side.
- [c6] The collector assembly of claim 1, wherein said anode side defines a receiving area for the anode.
- [c7] The collector assembly of claim 1, wherein said slot is defined within the collector assembly intersecting said window aperture such that at least one of direction of bending stiffness on said window area or heat dissipated through said window area is reduced.
- [c8] The collector assembly of claim 1, wherein said slot is defined within said collector assembly at least one of on an offset from said window area, aligned with said window area, different in surface area than said window area, having a same surface area to said window area, or having a differing shape than said window area.
- [c9] A collector assembly for an x-ray tube comprising:
an anode side;
a cathode side opposing said anode side, said anode side and said cathode side defining an internal bore therebetween for receiving x-rays from an anode, said cathode side further defining a slot;
a window side common to both said anode side and said

cathode side, said window side comprising a window coupled thereto, wherein a window aperture is defined extending from said window to said internal bore, and wherein said slot is further defined within the collector assembly transaxial to said window aperture and beyond, said slot defined opening into said anode side between said bore and said window side, and said slot extending circumferentially along said window such that at least one of plastic strain on said window or heat on said window is reduced.

[c10] The collector assembly of claim 9, wherein the collector is cubical in shape and comprises three other sides common to both said anode side and said cathode side.

[c11] The collector assembly of claim 9, wherein said anode side defines a receiving area for an anode.

[c12] The collector assembly of claim 9, wherein the collector is cubical in shape and comprises three other sides common to both said anode side and said cathode side.

[c13] An x-ray tube comprising:
a housing unit;
a cathode coupled within said housing unit and generating an electron beam;
an anode coupled within said housing unit and receiving

said electron beam and generating x-rays directed through an x-ray tube window; and a slotted collector assembly coupled to said x-ray tube window and comprising an anode side, a cathode side opposing said anode side, said anode side and said cathode side defining an internal bore therebetween, a window side common to both said anode side and said cathode side, said window side defining a window area therein, said x-ray tube window couples to said window area, a window aperture is defined extending perpendicularly from said window area to said internal bore, and a slot is defined within the collector assembly intersecting said window aperture such that at least one of plastic strain on said x-ray tube window or heat in said x-ray tube window is reduced.

[c14] The collector assembly of claim 13, wherein said slot is defined within said collector assembly at least one of on an offset from said window area, aligned with said window area, different in surface area than said window area, having a same surface area to said window area, or having a differing shape than said window area.

[c15] An x-ray tube as in claim 13, wherein said slotted collector assembly is interposed between said cathode and said anode.

- [c16] An x-ray tube as in claim 13, wherein said slotted collector assembly further comprises a fin pocket coupled to said window side.
- [c17] An x-ray tube as in claim 13, wherein said slot extends circumferentially along at least one of said x-ray tube window or said window area.
- [c18] An x-ray tube as in claim 13, wherein said slot extends trans-axial to said window aperture.
- [c19] An x-ray tube as in claim 13, wherein the collector is cubical in shape and comprises three other sides common to both said anode side and said cathode side.
- [c20] An x-ray tube as in claim 13, wherein said anode side defines a receiving area for an anode.